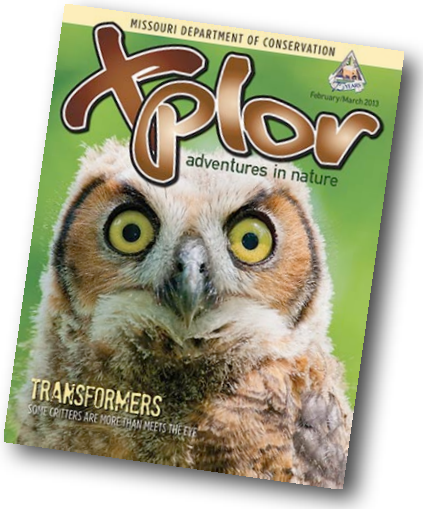
Xplor Educator Guide

Educational activities for *Xplor's* **February/March 2013** issue



Wild Shapes

"Make Wild Valentines" (Page 3) challenges students to find heart-shaped objects in nature. In this activity, your students will spend some time outdoors observing and documenting these shapes. In doing so, they will answer the following questions:

- How many different shapes (in nature) might be present in our schoolyard?
- Can more than one shape be found in the same area or on the same object?
- Does one type of area, such as a field or woods, contain more shapes than another? Why?

Materials

- Digital cameras
- Science notebooks
- Pencils, colored pencils, markers, crayons
- Blank paper
- Copies of Page 3 of the February/March 2013 issue of *Xplor* (at least one for every 3 students)

Procedure

1. Have each student write in his or her science notebook, "How many different shapes might be present in our schoolyard?" Ask the students to write a hypothesis that answers the question.
2. Break class into groups to take a hike with a digital camera and science notebooks, looking for different shapes. The shapes should be found in natural objects such as leaves or rocks.
3. Have students take photos and/or sketch the shapes they see as well as describe the objects they came from.
4. Have students regroup as a class to see what everyone found. How many found the same things? How many different shapes did they find?
5. Have students develop graphic organizers based on their findings. Discuss what aspect of their data they should present, then talk about which type of chart (pie, bar, line, etc.) would present the information best.
6. As a group, discuss the three questions introduced in this activity. Were the students' hypotheses for question 1 correct?

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Options

- Students may choose pictures from magazines to use in their shape hunt. They can make a chart to compare if there are more shapes found in plants than in animals.
- Using the ecosystem pictures in the Nature Unleashed student book on pages 5 (pond), 7 (forest), and 9 (prairie), have the students look at each and see what shapes they can find. Are there more shapes in one ecosystem than another?

Pulse Check

February is the month known for Groundhog Day and the time of year when nature starts transitioning from winter to spring. Refer to the back cover of the February/March 2013 issue of *Xplor* and Chapter 3 of the *Nature Unleashed* student book, especially pages 16–17 where hibernation is discussed.

A groundhog is a Missouri animal that can lower its heart rate during hibernation. The average heart rate for a groundhog drops from about 80 beats per minute (bpm) when active to 5 bpm when hibernating.

Invite students to compare their heart rate (active and resting) to that of a groundhog and find the mean (average) heart rate of the class.

Materials

- Science notebooks
- Pencils
- Calculator
- Chart page
- Stop watch (several to use in groups)
- Stethoscope (may be available from school nurse)

Procedure

1. Have students work in pairs or groups of four.
2. Using their science notebooks, have students predict what they think their heart rates will be (both resting and active.) Have students write the question: "Will my heart rate be faster or slower than that of a groundhog?"
3. Have students prepare their science notebook with the date and a data table. Data recorded could be student's name, date, and resting and active heart rates.
4. Show students how to take their heart rates. You can easily check your pulse on the inside of your

wrist, below your thumb. Gently place 2 fingers of your other hand on this artery. Do not use your thumb because it has its own pulse that you may feel. Count the beats for 30 seconds, and then double the result to get the number of beats per minute.

5. Have students get their resting heart rate by sitting still for at least one minute before taking their pulse. Have students walk around the room for at least one minute before taking their active pulse.
6. After everyone's heart rates are recorded, find the mean (average) rate of the class, both for resting and active. How do these compare to the groundhog? Were the predictions correct? How many students predicted correctly?

Options

- Use field guides or other reference materials (Chapter 3 of Nature Unleashed student book) to see if there are any other Missouri animals that hibernate and/or lower their heart rate during the winter months.
- Have students compare their heart rates to those animals.
- Find out why animals hibernate or lower their heart rates during the winter months.
- Have students research the heart rates of other animals (hummingbird, bear, deer, shrew). Try large and small animals and see if there is a significant difference in heart rates. Have students hypothesize if body size relates to heart rate.